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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,786	09/14/2007	Huanxiang Zhang	1017.40376-US1	4620
20311 7590 04/20/2009 LUCAS & MERCANTI, LLP 475 PARK AVENUE SOUTH 15TH FLOOR NEW YORK, NY 10016				
EXAMINER				
GAMETT, DANIEL C				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,786

Applicant(s)

ZHANG ET AL.

Examiner

DANIEL C. GAMETT

Art Unit

1647

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19, 21-23, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 10 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/19/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-26 are under examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 recites the limitation "the cells" in claim 8. Claim is dependent from claim 4, which recites both neural progenitor cells and neural cells that are lost or injured in a mammal. The antecedent basis for "the cells" in claim 9 is ambiguous as it may refer to transplanted neural progenitor cells or neural cells at a site of injury or loss.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for

patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-9, 15-19, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication 20040214766 (Alitalo), filed September 23, 2003. Alitalo teaches administration of VEGF-C or VEGF-D products, which are VEGFR-2 ligands, to promote regeneration, differentiation and migration of neural stem cells or neuronal progenitor cells in patients exhibiting symptoms of a neurodegenerative disease or who have endured neural trauma or injury [0390]. The VEGF-C may be optionally administered in conjunction with FGF-2 in a single pharmaceutical composition (see [0111 and claim 24). "VEGF-C" includes VEGF-C_{ANAC} [0087]. The neural stem cells may be transplanted; the cells and/or the growth factors may be administered systemically, or locally at the site of neuropathology ([0107] [0192]). Alitalo teaches that neural stem and progenitor lines, and purified neural stem cells, may be used in the methods [0108]. Neural stem cells isolated from brain inherently express VEGFR-1 and VEGFR-2 (recited in instant claim 9) as evidenced by US Patent Application Publication 20030203844, in FIG. 35 and [0071]. Alitalo, therefore, teaches the same produce, administered by the same means, to the same patient population, for the same purpose as recited in instant claims 1, 3-8, 15-19, and 25.
6. Claims 21, 22, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6261585, 17 July 2001 (of record). The reference teaches incorporation in of VEGF and bFGF into biocompatible polymers for in vivo implantation (column 3, lines 35-50), thereby anticipating claims 20, 21, and 25.

7. Claims 21, 22, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6726718, filed December 13, 1999. The '718 patent discloses a composition comprising VEGF, FGF, Tat protein (also a VEGFR-2 ligand) and viable cells (see claim 1), thereby anticipating claims 20, 21, and 25.
8. Claims 1-9, 11, 12, 15-19, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication 20030203844 (Delfani) filed April 30, 1998 (of record). Delfani teaches methods of treatment of CNS disorders, including strokes and trauma [0183], using reagents that modulate the proliferation, migration, differentiation and survival of central nervous system cells (see Abstract). The disclosed reagents include VEGF (whole document) and FGF2 [0338]; these factors are taught to be administered locally [0222]. Delfani teaches administration of neural stem cells propagated ex vivo [0035]. The disclosed method of culturing neural stem cells included growth in medium containing bFGF (FGF-2) followed by VEGF [0326-0328], as recited in instant claim 2. The neural stem cells express VEGFR-1 and VEGFR-2 (recited in instant claim 9; see FIG. 35 and [0071]). The effect of modulating the migration of neural progenitor cells recited in the instant claims indicates an intended outcome and does not result in manipulative difference in steps of the claims. Furthermore, the effect of modulating the migration of neural progenitor cells merely reflects a newly discovered inherent property; this outcome would occur whenever the methods taught in the prior art are practiced. "Preamble language in claims of patents directed to administration of anticancer drug are expressions of purpose and intended result, and as such

are non-limiting, since language does not result in manipulative difference in steps of claims...Expressions of efficacy in claims of patents directed to administration of anticancer drug will not be given limiting effect, even though new uses of old processes are patentable, since claimed process in present case is not directed to new use, and it consists of same steps described in prior art reference, and since newly discovered results of known processes directed to same purpose are inherent, and thus are not patentable.” *Bristol-Myers Squibb Co. v. Ben Venue Labs Inc.*, 246 F.3d 1368, 58 USPQ2d 1508 (Fed. Cir. 2001) (61 PTCJ 623, 4/27/01)

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 13, 14, 22, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication 20030203844 (Delfani) and US Patent Application Publication 20040214766 (Alitalo), as applied to claim 1-9, 11, 12, 15-19, and 25 above, and further in view of US Patent 6261585, US Patent 6726718, and US Patent 6171610. The instant claims are drawn to methods of treatment comprising administration of a VEGFR-2 ligand and FGF-2 associated with a biocompatible matrix (claims 13 and 14) and

compositions comprising a biocompatible matrix, VEGFR-2 ligand, FGF-2, and neural progenitor cells (claims 22, 23, and 26).

11. As noted above, the Delfani and Alitalo references teach treatments using local administration VEGF, FGF2, and neural stem cells for the treatment of diseased or damaged neural tissue. Delfani and Alitalo do not teach administration of these treatments in a biocompatible matrix as recited in the instant claims. US Patent 6261585 teaches incorporation in of VEGF and bFGF into biocompatible polymers for in vivo implantation. US Patent 6726718 discloses a composition comprising VEGF, FGF, Tat protein and viable cells in a biocompatible matrix. The '718 patent does not specifically teach neural progenitor cells as the cell to be administered with the biocompatible matrix. US Patent 6171610 teaches compositions and methods for treating defective nervous tissue comprising incorporation of neural or neuroendocrine stem cells into a biocompatible support structure (see claims 1, 17-19, 21, 34-36, 39-47, and 51-58). Therefore, both the '585 and '718 patents teach that biocompatible matrices can be used as means to locally deliver VEGF, bFGF, and or cells to selected sites, and the '610 patent teaches the implantation of neural progenitor cells by means of a biocompatible matrix. The skilled artisan would expect success in adapting this method for local administration VEGF, FGF2, and neural stem cells for treating a mammal having a disorder involving loss or injury of neural cells as taught by Delfani and Alitalo, thus arriving at the instantly claimed methods.

Conclusion

12. Claims 1-9, 11-19, 21-23, 25, and 26 are rejected.

13. Claims 10 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel C. Gamett, PhD., whose telephone number is (571)272-1853. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manjunath N. Rao can be reached on 571 272 0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel C Gamett/
Examiner, Art Unit 1647